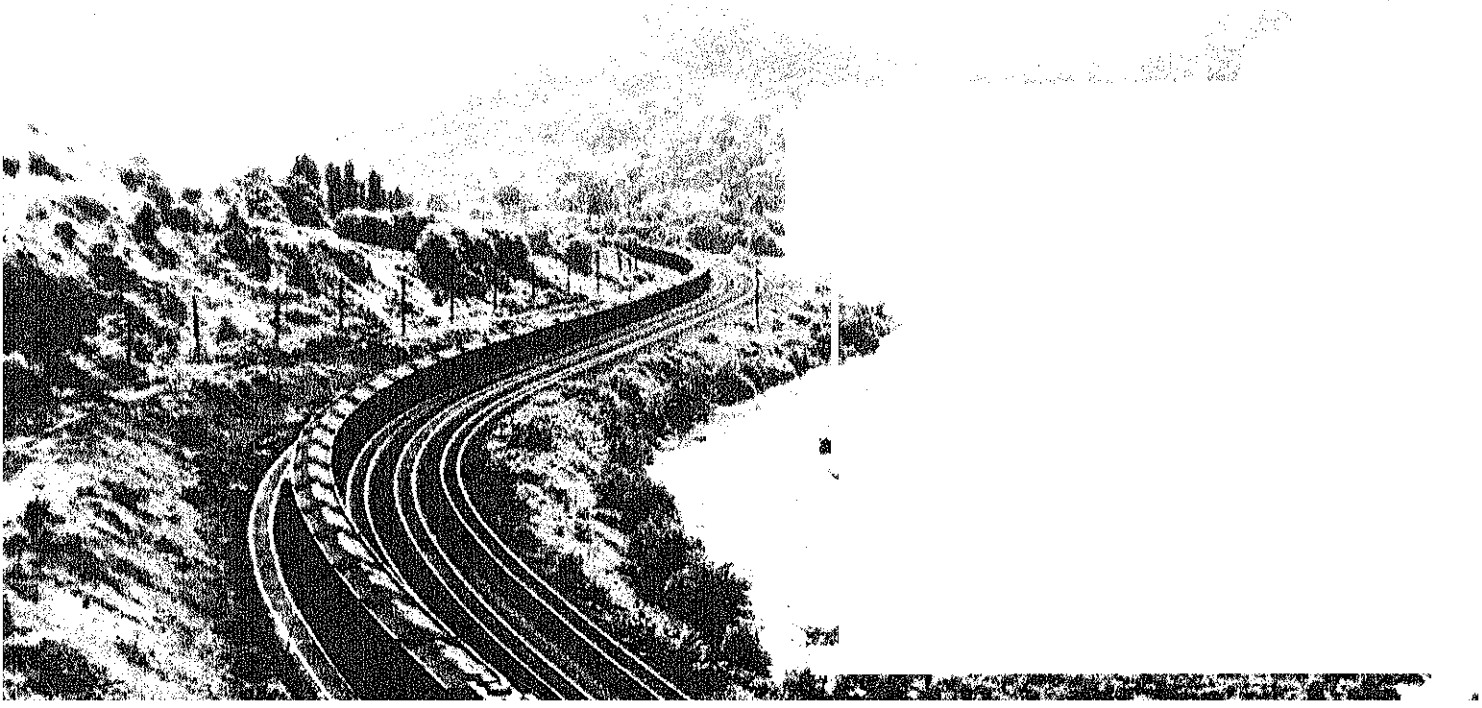
DOE/EIA-0218(91-22)

Weekly Coal Production

Energy
Information
Administration

Production for Week Ended:
May 25, 1991



Preface

The *Weekly Coal Production (WCP)* provides weekly estimates of U.S. coal production by State. Supplementary data are usually published monthly in two supplements: the Coal Exports and Imports Supplement and the Domestic Market Supplement. The Coal Exports and Imports Supplement contains detailed monthly data on U.S. coal and coke exports and imports. The Domestic Market Supplement contains detailed monthly electric utility coal statistics, by Census Division and State, for generation, consumption, stocks, receipts, sulfur content, prices, and the origin and destination of coal shipments. This supplement also contains summary-level, monthly data for all coal-consuming sectors on a quarterly basis.

Preliminary coal production data are published quarterly, based on production data collected using Form EIA-6, "Coal Distribution Report." Based on 1988 and 1989 data, the coal production estimation error for a quarter at the national level (i.e., the difference between the sum of the weekly estimates for a quarter and the quarterly EIA-6 preliminary data) ranges from 1 percent to 4 percent for 1988 and 1 percent to 2 percent for 1989.

Final coal production data are published annually, based on the EIA-7A coal production survey. Based on 1988 and 1989 data, the revision error for a quarter at the national level (i.e., the difference between the EIA-6 preliminary data and the EIA-7A final data) ranges from 0.02 percent to 0.08 percent for 1988 and 0.09 percent to 0.14 percent for 1989.

This publication is prepared by the Coal Division; Office of Coal, Nuclear, Electric and Alternate Fuels; Energy Information Administration (EIA) to fulfill its data collection and dissemination responsibilities as specified in the Federal Energy Administration Act of 1974 (P.L. 93-275) as amended. *Weekly Coal Production* is intended for use by industry, press, State and local governments, and consumers. Other publications that may be of interest are the quarterly *Coal Distribution*, the *Quarterly Coal Report*, *Coal Production 1989*, and *Coal Data: A Reference.*

This publication was prepared by Wayne M. Watson and Michelle D. Bowles under the direction of Mary K. Paull and Noel C. Balthasar, Chief, Data Systems Branch. Specific information about the *State Coal Profile: Pennsylvania* may be obtained from Eugene R. Slatick at 202/254-5384. *Questions on energy statistics should be directed to the National Energy Information Center (NEIC) at 202/586-8800.*

Photo Credit:

Consolidation Coal Company
State Coal Profile

Distribution Category UC-98

Released for printing May 31, 1991

Summary

U.S. coal production in the week ended May 25, 1991, as estimated by the Energy Information Administration, totaled 19 million short tons. This was slightly higher than in the previous week, and about the same as in the comparable week in 1990. Production east of the Mississippi River totaled 12 million short tons, and production west of the Mississippi River totaled 8 million short tons.

Figure 1. Coal Production

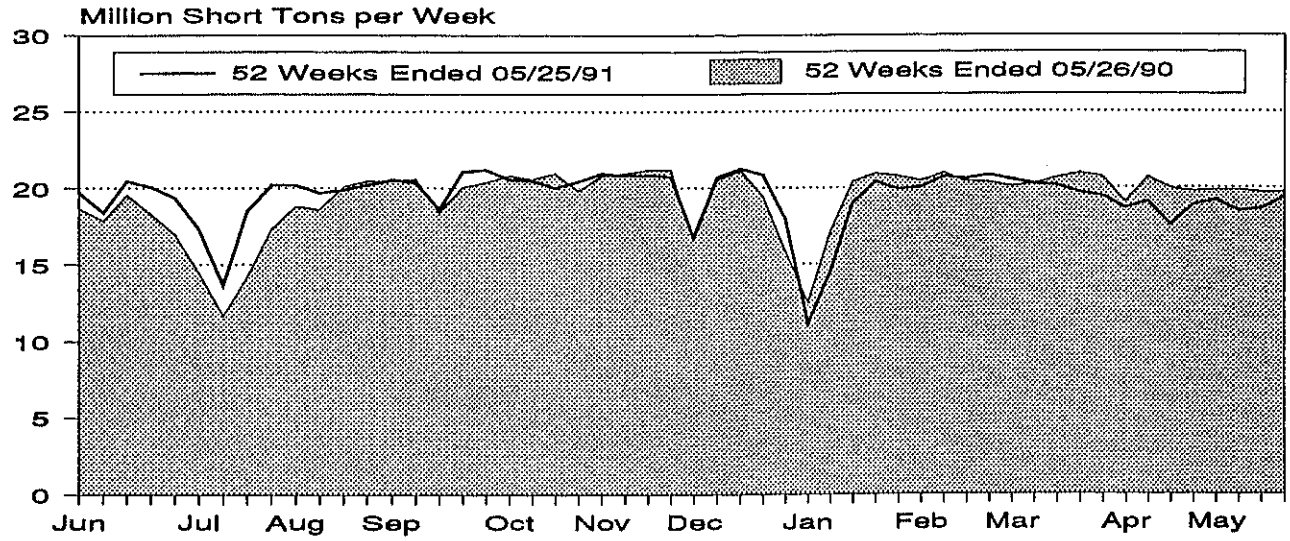


Table 1. Coal Production

Production and Carloadings	Week Ended 05/25/91	Week Ended 05/18/91	Week Ended 05/26/90	52 Weeks Ended 05/25/91	52 Weeks Ended 05/26/90	Percent Change
Production (Thousand Short Tons)						
Bituminous Coal[1] and Lignite	19,394	18,586	19,673	1,006,897	1,000,150	0.7
Pennsylvania Anthracite	52	49	54	2,817	3,116	-9.6
U.S. Total	19,446	18,635	19,727	1,009,713	1,003,266	0.6
Railroad Cars Loaded	127,949	122,654	130,041	6,552,373	6,493,493	

[1]Includes subbituminous coal.

Notes: All data are preliminary. Totals may not equal sum of components because of independent rounding.

Sources: Association of American Railroads, Transportation Division, Weekly Statement CS-54A; Energy Information Administration, Form EIA-6, "Coal Distribution Report"; Form EIA-7A, "Coal Production Report"; and State mining agency coal production reports.

Table 2. Coal Production by State
(Thousand Short Tons)

Region and State	Week Ended 05/25/91	05/18/91	05/26/90
Bituminous Coal[1] and Lignite			
East of the Mississippi	**11,630**	**11,135**	**12,142**
Alabama	573	515	580
Illinois	1,135	1,126	1,232
Indiana	705	710	685
Kentucky	3,065	2,928	3,341
Kentucky, Eastern	2,324	2,231	2,431
Kentucky, Western	742	697	910
Maryland	64	62	66
Ohio	658	624	617
Pennsylvania Bituminous	1,319	1,226	1,271
Tennessee	119	110	131
Virginia	937	868	925
West Virginia	3,054	2,966	3,292
West of the Mississippi	**7,764**	**7,451**	**7,530**
Alaska	24	23	23
Arizona	206	197	154
Arkansas	1	1	*
Colorado	413	382	387
Iowa	7	7	7
Kansas	16	16	15
Louisiana	58	51	73
Missouri	47	45	49
Montana	701	676	708
New Mexico	455	460	508
North Dakota	539	519	548
Oklahoma	37	27	38
Texas	1,090	1,045	1,047
Utah	475	427	454
Washington	92	88	97
Wyoming	3,604	3,486	3,422
Bituminous Coal[1] and Lignite Total	**19,394**	**18,586**	**19,673**
Pennsylvania Anthracite	**52**	**49**	**54**
U.S. Total	**19,446**	**18,635**	**19,727**

[1]Includes subbituminous coal.
*Less than 0.5 thousand short tons.
Notes: All data are preliminary. Totals may not equal sum of components because of independent rounding.
Sources: Association of American Railroads, Transportation Division, Weekly Statement CS-54A; Energy Information Administration, Form EIA-6, "Coal Distribution Report"; Form EIA-7A, "Coal Production Report"; and State mining agency coal production reports.

State Coal Profile: Pennsylvania

Total Area of State:

45,333 square miles

Area Underlain by Coal:

15,000 square miles

Demonstrated Reserve Base of Coal:
(January 1, 1990)

29 billion short tons
(6 percent of U.S. total)

First Year of Documented Coal Production:

1800 (87,250 short tons)

Peak Year of Coal Production:

1918 (277 million short tons)

1989 Coal Production:

71 million short tons
(7 percent of U.S. total)

1989 f.o.b. Mine Price:

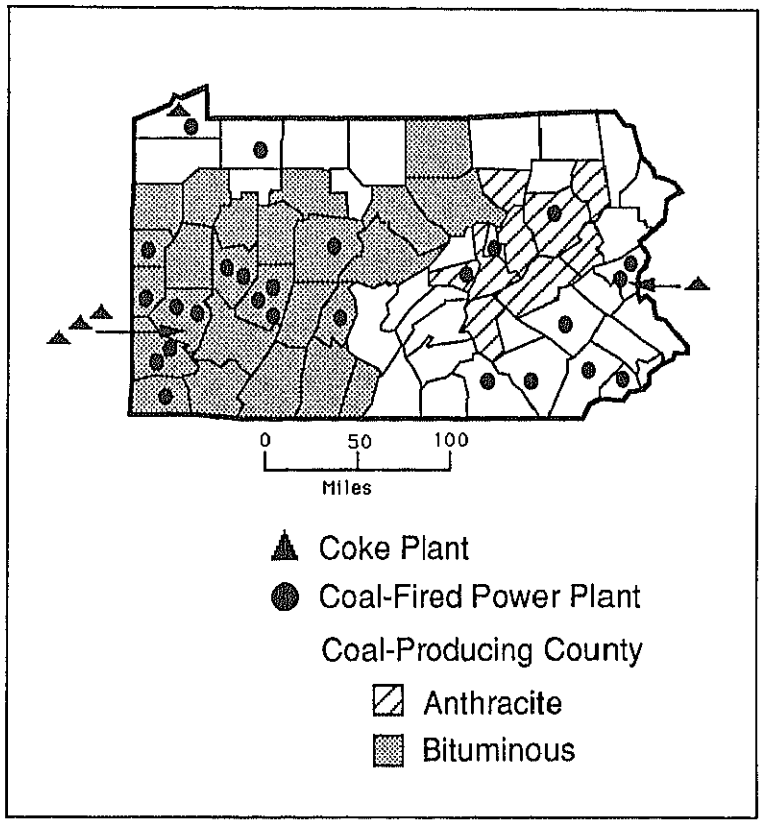
$29.33 per short ton
(U.S. average = $21.82)

1989 Coal Consumption:

59 million short tons
(7 percent of U.S. total)

1989 Coal Exports:

10 million short tons
(10 percent of U.S. total)



	Number	Percentage of U.S. Total
Number of Mines (1989)	681	19
Underground	156	9
Surface	525	28
Number of Miners (1989) (at mines producing more than 10,000 short tons)	15,469	12
Underground	9,578	11
Surface	5,891	12

Average Quality of Utility Coal Receipts (1989)	Pennsylvania	U.S. Average
Heat Content (million Btu per short ton)	24.5	20.9
Sulfur Content (percent by weight)	2.1	1.3
Ash Content (percent by weight)	13.3	9.9

Pennsylvania has long been a major source of coal. It led the Nation in coal production until the early 1950's, and in 1989 ranked fourth among the 27 coal-producing States. Cumulative production is more than 15 billion short tons, an amount far exceeding that from any other State. Coal is also Pennsylvania's most valuable mineral resource. The 1989 coal output of 71 million short tons was valued at more than $2 billion and represented about 58 percent of the total value of all mineral commodities produced in Pennsylvania.

Pennsylvania's coal deposits, located in the northern part of the Appalachian coal basin, consist of bituminous coal and anthracite. Bituminous coal underlies most of the western part of the State, typically occurring in flat-lying beds. The anthracite deposits are in four fields in the east, where the beds are intensely folded and faulted. These deposits have been the source of virtually all of the anthracite produced in the United States. The bituminous coal, as mined, has a heat content averaging about 25 million Btu per short ton, a sulfur content ranging from less than 1 to more than 2 percent (by weight), and an ash content of about 8 to 10 percent. Nearly three-fourths of the bituminous coal reserves can be used in blends to produce coke, which is used in blast furnaces to smelt iron ore. Anthracite has a slightly lower average heat content and generally contains less than 1 percent sulfur and about 12 percent ash. Anthracite is mixed in some blends of coking coal to improve the physical properties of the coke produced.

About 40 coalbeds are mined in Pennsylvania. The major beds of bituminous coal are the Pittsburgh, the Upper and Lower Freeport, and the Upper and Lower Kittanning. These five beds, which range from 3 to 6 feet in average thickness, currently account for about three-fourths of the State's coal output. An important source of anthracite is the Mammoth coal zone. The zone consists of a group of coalbeds that individually are about 5 to 6 feet thick, but merge in places to form a single bed more than 50 feet thick.

ıe presence of coal was noted early in nnsylvania's history. Bituminous coal was first ıined in 1760 near present-day Pittsburgh. By the nid-1800's, the bituminous coal in the region had ecome a popular fuel for domestic use and for the arly salt and glass industries. The growth of the tate's bituminous coal industry accelerated with the evelopment of the iron and steel industry and the ıtroduction of coal-fired steam power. The earliest se of anthracite was by blacksmiths at Wilkes-arre in 1769. Anthracite was not widely accepted s a fuel until the problem of keeping it burning ras solved by the use of specially designed grates nd stoves.

The development of canals, railroads, and river transportation in Pennsylvania opened up markets for both bituminous coal and anthracite, spurring production. Annual coal production rose from more than 1 million short tons in the 1830's to about 140 million short tons at the turn of the century. In 1918, production reached an all-time high of 277 million short tons, a level unequalled by any other State. (Bituminous coal production peaked at 179 million short tons in 1918, and anthracite at 100 million short tons in 1917.) However, the output declined as fuel oil and natural gas made inroads into coal markets. Production dropped below 130 million short tons during the Great Depression before climbing to more than 200 million short tons during World War II. Production then declined due to growing competition from other fuels, the loss of the large railroad market as diesel-electric locomotives replaced coal-fired locomotives, and a decreasing demand for coal by the iron and steel industry. Anthracite production dropped substantially, from over 40 million short tons in 1950 to 3 million short tons in 1989. Bituminous coal production decreased by nearly the same amount, from over 100 million short tons in 1950 to 67 million short tons in 1989.

The importance of underground coal mining in Pennsylvania declined from its historically dominant role with the rise in surface mining after World War II. In 1989, underground mines produced 58 percent of the bituminous coal and 15 percent of the anthracite. The Bailey mine of the Consolidation Coal Company, in Greene County, ranked as the Nation's largest underground coal mine, producing about 6 million short tons. The mine has 2 of 12 longwall mining systems currently in operation in Pennsylvania. Anthracite mines are comparatively small operations. Miner productivity at Pennsylvania's bituminous coal mines in 1989 averaged 2.2. short tons per hour at underground mines and 2.8 short tons per hour at surface mines, both slightly lower than the average for the Appalachian Region. Productivity for anthracite miners averaged approximately 1 short ton per hour at both types of mines. Nearly 100 coal preparation plants are in operation in the State.

Almost two-thirds of the coal produced in Pennsylvania in 1989 was distributed to consumers in the State. Of the more than 40 other States that received the balance, the leading destinations were New York, Ohio, and Maryland. In addition, about 10 million short tons were produced for export, with overseas markets accounting for slightly over one-half of the total and Canada for the rest.

Coal consumption in Pennsylvania in 1989 totaled 59 million short tons, which ranked the State third nationally. Electric power plants, the major coal market in the State since the 1970's, accounted for 43

million short tons. Nearly three-fourths of the utility coal was produced in Pennsylvania, with West Virginia supplying most of the remainder. Anthracite culm and silt, waste materials from preparation plants, were also used as utility fuel. Coke plants, the second largest class of coal consumers, used 10 million short tons, receiving less than one-half from Pennsylvania's mines and most of the balance from West Virginia. Although the number of active coke plants in the State decreased from 12 in 1980 to 5 in 1989, Pennsylvania is the Nation's second-largest coke-producing State. Other industrial consumers, principally cement plants and paper mills, used about 4 million short tons of coal, produced chiefly in Pennsylvania. Residential and commercial coal consumption totaled over 1 million short tons, more than half of it anthracite.

The net summer generating capability of Pennsylvania's 26 coal-fired power plants at the beginning of 1990 was 17,508 megawatts (MW), one-half of the State's total electricity generating capability. In 1989, coal-generated electricity totaled 106 billion kilowatthours, accounting for over two-thirds of the total electricity generated in the State. Although the amount of electricity generated from coal has risen, coal's share of total generation has fallen by about 10 percent since the early 1980's, due to an increase in generation from nuclear power. The State's two largest coal-fired power plants are among the largest in the Nation. Ranking first in Pennsylvania and 12th nationally is the 2,327 MW Bruce Mansfield plant of the Pennsylvania Power Company, in Beaver County. Second-largest in the State is the 1,884 MW Homer City plant, operated by the Pennsylvania Electric Company, in Indiana County.

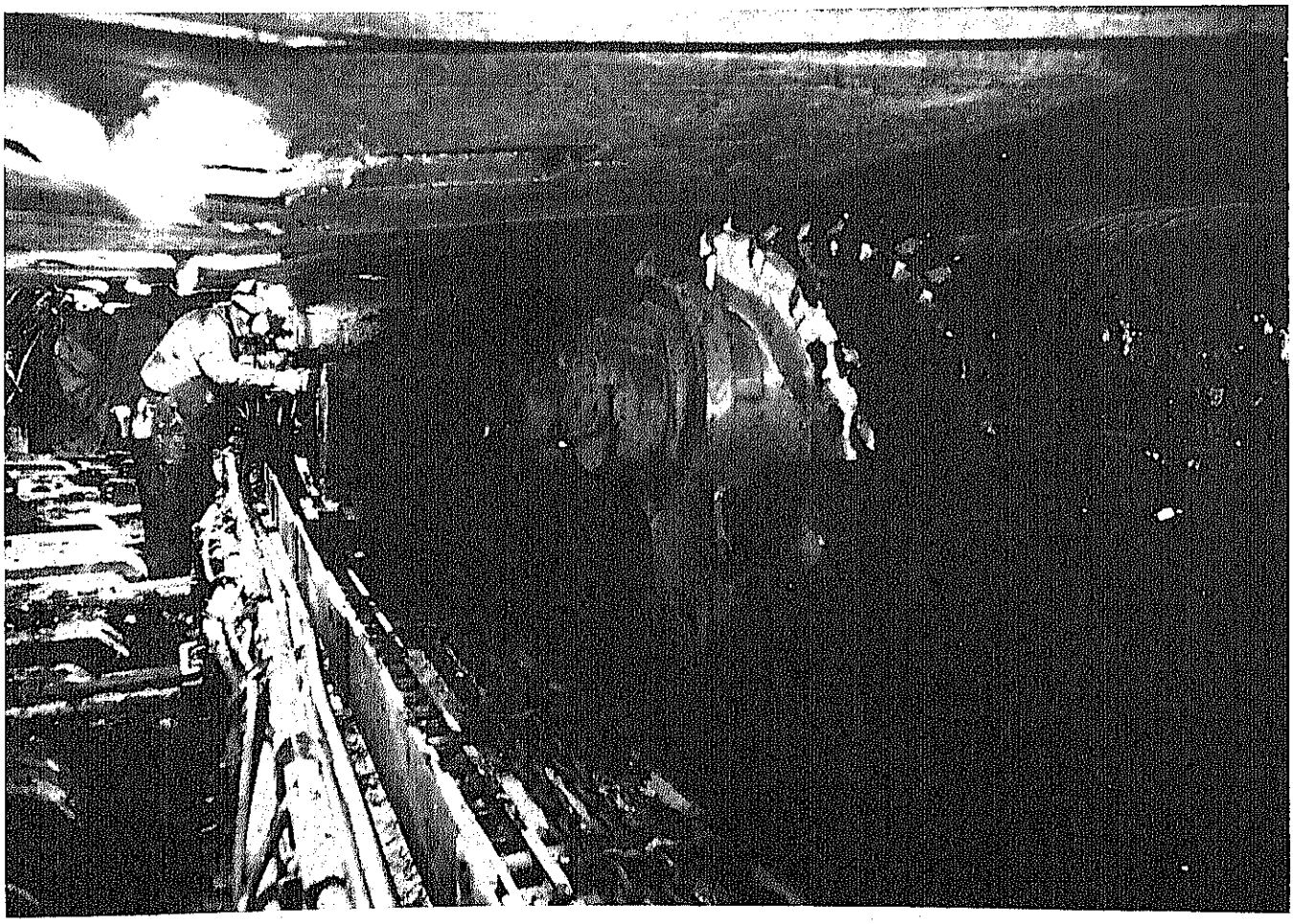
Three coal demonstration projects underway in Pennsylvania are part of the U.S. Department of Energy's Clean Coal Technology Program, a government-industry co-funded development effort. At Williamsport, Coal Tech Corporation is working on an advanced cyclone combustor. At Homer City, Combustion Engineering, Incorporated, and CQ, Incorporated, are making combustion tests on coal cleaned by advanced methods and using the data to develop computer software for predicting the combustion performance of clean coal. At Seward, Bechtel Corporation is developing a process for removing sulfur dioxide and nitrogen oxides from flue gas.

The Pennsylvania Energy Development Authority, part of the Pennsylvania Energy Office, also provides funds to promote coal research and development. The projects supported include mining methods, various clean coal technologies, the use of anthracite and anthracite-bituminous coal blends as utility fuel, and the development of a commercial anthracite boiler that can compete with oil and gas boilers.

Annual coal production in Pennsylvania is expected to continue at about 70 million short tons into the early 1990's. The electric utility industry will continue to dominate the market for bituminous coal, and the residential and commercial sector is expected to remain the leading market for anthracite. The opportunity for increasing bituminous coal sales will be influenced by progress in developing clean coal technologies. Some beds of bituminous coal in southwestern Pennsylvania are being evaluated for commercial development as sources of methane to supplement the natural gas supply. Although the remaining anthracite reserves constitute a large source of low-sulfur coal and also have prospects for coalbed methane production, the complex geology of the area is a constraint on economical development.

References:

Energy Information Administration: *Coal Production* (various issues); *Quarterly Coal Report* (various issues); *Coal Distribution January-December 1989* (April 1990); *Cost and Quality of Fuels for Electric Utility Plants 1989* (August 1990); *Electric Power Annual* (various issues); *State Energy Data Report: Consumption Estimates 1960-1988*. U.S. Department of Energy, Assistant Secretary for Fossil Energy, *Clean Coal Technology Demonstration Program. Program Update 1990 (As of December 31, 1990)* (DOE/FE-0219P) (February 1991); U.S Bureau of Mines: *State Mineral Summaries 1991;* Bureau of Mines Information Circular 8805, *Demonstrated Reserve Base of U.S. Coals with Potential for Use in the Manufacture of Metallurgical Coke* (1979). Pennsylvania Department of Environmental Resources, *1989 Annual Report on Mining Activities;* Pennsylvania Coal Association, *Pennsylvania Coal Data 1990;* Pennsylvania Academy of Sciences, *Pennsylvania Coal: Resources, Technology, and Utilization* (1983); Pennsylvania Historical and Museum Commission, *Coal Age Empire. Pennsylvania Coal and Its Utilization to 1860;* "The United States Coalbed Methane Resource," *Quarterly Review of Methane from Coal Seams Technology,* Vol. 7, No. 3 (March 1990), pp. 10-28; "As Time Changes, So Do Longwalls," *Coal,* Vol. 96, No. 2 (February 1991), pp. 40-49; "Plant Census Shows More than 400," *Coal,* Vol. 26, No. 8 (November 1989), pp. 56-65; Pennsylvania Energy Development Authority, *Annual Report for Fiscal Year 1989-90.*



gwall machine is one of two operating in Consolidation Coal Company's Bailey mine in Greene County. he mine produced about 6 million short tons, which ranked it as the Nation's largest underground coal

EIA Coal Data and Coal Models on Tape and Electronic Access

Coal Data Tapes

The **Coal Distribution** data tapes contain annual data on coal shipments by origin, destination, consumer sector and mode of transportation as well as on coal production and producer/distributor stocks, beginning with 1980. Additional information is available from Steve Scott, (202) 254-5467.

The **Coal Production** data tapes contain annual data on production, average mine price, reserves, employment and productivity, beginning with 1979. Additional information is available from John G. Colligan, (202) 254-5465.

The **Quarterly Coal Report** data tape contains quarterly data on production, exports, imports, consumption, receipts, delivered prices and stocks, beginning with 1980. Additional information is available from Paulette Young, (202) 254-5481.

Coal Data By Electronic Access

Public access to coal data is available electronically by dialing (202) 586-8658. Communications are asynchronous at 300 or 1200 baud line speeds and require a standard ASCII-type terminal. (This service is free of charge).

Weekly Coal Production: This file contains current weekly coal production data. Additional information is available from Mary K. Paull, (202) 254-5379.

Quarterly Coal Report: This file contains comprehensive data on U.S. coal production, exports, imports, receipts, consumption and stocks. Additional information is available from T.C. Swann, (202) 254-5407.

Coal Model Tapes

The Coal Supply and Transportation Model (CSTM) is used to forecast coal production levels and coal transportation flows. The CSTM has been used to develop projections which appear in *Outlook for U.S. Coal Imports* and the *Annual Outlook for U.S. Coal* and served as the basis for an EIA report on rail deregulation and an EIA report on coal slurry pipelines. CSTM projections will appear in the *Annual Energy Outlook 1991*, and were used in support of the National Coal Model (NCM) to provide analysis of the Clean Air Act Amendments of 1990. It also provides forecasts for several other EIA coal and multi-fuel reports. Additional information is available from Rich Newcombe, (202) 254-5370.

The International Coal Trade Model (ICTM) projects coal trade flows and represents all the major coal-exporting and coal-importing countries, as well as those with the potential to become major coal exporters. The ICTM is used to develop coal trade forecasts presented each year in *Annual Prospects for World Coal Trade.* In addition, ICTM projections served as the foundation for two recent service reports, *The Impact of Eliminating Coal Subsidies in Western Europe* and *Lower U.S. Mining Costs: Impact on World Coal Trade Projections.* Additional information is available from Fred Mayes, (202) 254-5409.

The National Coal Model (NCM) provides detailed projections of coal supply, transportation, and electric utility consumption. The NCM is primarily used to assess the consequences of proposed clean air legislation on the coal and electric utility industries, as in its use during 1990 to analyze impacts of the Clean Air Act Amendments of 1990. Additional information is available from Rich Newcombe, (202) 254-5370.

The Resource Allocation and Mine Costing Model (RAMC) uses estimates of coal reserves and cost estimates for new mine development to construct long-term supply curves relating coal prices and production for specific types of coal, supply regions, and mining methods. These supply curves are used in the CSTM, ICTM, and NCM. Additional information is available from B.D. Hong, (202) 254-5365.

The Short-term Coal Analysis System (SCOAL) is a series of equations used to project quarterly coal production trends by State. SCOAL projections appear in the *Short-term Energy Outlook,* EIA's quarterly summary of energy demand and supply projections, and the *Quarterly Coal Report.* Additional information is available from Fred Freme, (202) 254-5367.

The PC-Coal Model projects coal production, coal mine-mouth prices, and delivered coal prices for seven supply regions. This simplified model is available on diskette. Additional information is available from B.D. Hong, (202) 254-5365.

NOTE: To order coal model tapes or data tapes, or to learn more about them, contact the National Energy Information Center at (202) 586-8800.

EIA Coal Publications

Data Reports

Coal Production reports annual coal production, average mine price, average daily production, major seams mined, recoverable reserves, average recovery percentage, average productivity per miner per hour, average number of miners working daily, number of days worked, and the Nation's demonstrated reserve base. (Issued annually)

Coal Data: A Reference is a comprehensive overview of the U.S. coal industry which, is designed to be of value to both laypersons and technicians. It contains a historical review of the U.S. coal industry and up-to-date information on U.S. coal deposits, reserves, mining methods, production, employment, health and safety, preparation, transportation, stocks, uses, exports, environmental issues, and the coal industry's outlook for the future. Also presented is an extensive bibliography of books, publications, and articles on coal and a listing of Federal, State, and private sources of coal information. (Issued biennially)

Coal Distribution reports shipments of coal by State of destination, consuming sector, mode of transportation, and coal-producing State of origin. It also presents production, purchases and producer/distributor stocks. (Issued quarterly)

Quarterly Coal Report (QCR) highlights coal-related legislation and industry trends, and quarterly data on coal production, exports and imports, consumption, receipts, and stocks. Additional data covering the coke industry, coal imports and metric versions of summary level tables are also available. (Issued quarterly)

Weekly Coal Production (WCP) provides weekly estimates of U.S. coal production by State. Supplementary data are usually published monthly in two supplements: the Coal Exports and Imports Supplement and the Domestic Market Supplement. The Coal Exports and Imports Supplement contains detailed monthly data on U.S. coal and coke exports and imports. The Domestic Market Supplement contains detailed monthly electric utility coal statistics, by Census Division and State, for generation, consumption, stocks, receipts, sulfur content, prices, and the origin and destination of coal shipments. This supplement also reports summary-level, monthly data for all coal-consuming sectors on a quarterly basis. (Issued weekly)

Analytical Reports

Annual Outlook for U.S. Coal expands on the coal forecasts of the *Annual Energy Outlook,* EIA's volume on multi-fuel price, supply and demand projections to the year 2010. By focusing on a single fuel, the *Annual Outlook for U.S. Coal* clarifies how the projections are made, discusses major coal industry issues, and provides additional detailed projections. (Issued annually)

Annual Prospects for World Coal Trade projects U.S. coal exports and imports, analyzes world coal trade flows, and highlights both current and potential major coal-exporting countries. (Issued annually)

The Changing Structure of the U.S. Coal Industry 1976-1986 analyzes the changes which have occurred in the U.S. coal industry between 1976 and 1986. Utilizing concentration ratios and other data, the report confirms the shift in coal production from smaller to larger firms, while showing that the production shares of the largest firms have decreased. (June 1988, 34 pages)

Lower U.S. Mining Costs: Impact on World Coal Trade Projections reports the results of a study requested by the Department of the Interior. It evaluates a set of scenarios wherein U.S. eastern mining costs are progressively lowered, reflecting possible productivity gains from advanced coal mining technology. (August 1988, 35 pages)

The Impact of Eliminating Coal Subsidies in Western Europe evaluates the increase likely in world coal trade if all western European countries and Japan eliminated all support to their domestic coal industries. By far, the countries which would suffer the greatest declines in production are Germany and the United Kingdom. (September 1989, 31 pages)

To order these reports or to learn more about them, contact the National Energy Information Center at (202) 586-8800.

This publication is available from the Superintendent of Documents, U.S. Government Printing Office (GPO). Information about purchasing this or other Energy Information Administration (EIA) publications may be obtained from the GPO or the EIA's National Energy Information Center (NEIC). Questions on energy statistics should be directed to the NEIC by mail, telephone or telecommunications device for the deaf (TDD). Addresses, telephone numbers, and hours appear below.

National Energy Information Center, EI-231
Energy Information Administration
Forrestal Building, Room 1F-048
Washington, DC 20585
(202) 586-8800
Telecommunications Device for the
Deaf only: (202) 586-1181
Hours: 8 a.m. - 5 p.m., M-F, Eastern Time

Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402
(202) 783-3238